

Application No. 10/667,398
Response to Office Action of August 2, 2006

Patent
Attorney Docket No. 86331-11

Amendment to the claims: This listing of claims will replace all prior versions, and listings, of claims in the present patent application.

Listing of claims:

1. (Currently amended) A process for creating color effects in extrudable material, said process comprising:
 - a) providing a first flow of viscous material of a first color;
 - b) providing a second flow of viscous material of a second color, said second color being different from said first color;
 - c) combining in a predetermined pattern said first flow and said second flow to form a stream of viscous material, said stream comprising a first band of said first color and a second band of said second color, said second band being adjacent to said first band;
 - d) in a static mixer having a predetermined number of elements and a predetermined diameter, applying a predetermined dividing, overturning and combining motion to said stream for a predetermined number of times thereby partially mixing said first band and said second band, such that said first and second bands remain in the stream and said stream further comprises a third band of a third color that is different from said first and second colors,

wherein said predetermined dividing, overturning and combining motion is determined by said predetermined number of elements and said predetermined diameter of the static mixer, and wherein said predetermined number of elements and said predetermined diameter are determined by a parameter selected from the type of viscous material, viscosity of said first and second flow of viscous material, the respective rate of flow of said first and second flows, the total rate of flow of said stream, and combinations thereof.
2. (Original) A process as defined in claim 1, wherein said third band is located between said first band and said second band.

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3. (Original) A process as defined in claim 1, wherein said third color is a mix of said first and second colors.
4. (Cancelled)
5. (Original) A process as defined in claim 1, wherein said first, second and third bands of said stream form horizontal layers.
6. (Original) A process as defined in claim 1, wherein said first, second and third bands of said stream form vertical layers.
7. (Original) A process as defined in claim 1, wherein said first, second and third bands of said stream form concentric layers.
8. (Previously presented) A process as defined in claim 1, wherein said dividing, overturning and combining motion for a predetermined specific number of times is provided by a static mixer.
9. (Previously presented) A process as defined in claim 1, wherein after being submitted to said dividing, overturning and combining motion for a predetermined specific number of times, said stream further comprises at least one additional band located between said third band and either one of said first and second bands.
10. (Currently amended) A process as defined in claim 9, wherein said at least one additional band comprises a color selected from ~~the group consisting of:~~ said first color; said second color; a blend of said first and second colors; a blend of said first and third colors; and a blend of said second and third colors.
11. (Original) A process as defined in claim 10, wherein said at least one additional band provides for a gradation in color from either one of said first and second colors to said third color.

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12. (Currently amended) A process as defined in claim 1, wherein after applying the dividing, overturning and combining motion for a predetermined ~~specific~~ number of times, said process includes the step of forming said stream of viscous material into a sheet.
13. (Currently amended) A process as defined in claim 1, wherein after applying the dividing, overturning and combining motion for a predetermined ~~specific~~ number of times, said process includes the step of forming said stream of viscous material into a tube.
14. (Original) A process as defined in claim 1, wherein said viscous material is viscous plastic.
15. (Currently amended) A process for manufacturing a sheet from extrudable material, said process comprising:
 - a) providing a first flow of viscous material of a first color;
 - b) providing a second flow of viscous material of a second color, said second color being different from said first color;
 - c) combining in a predetermined pattern said first flow and said second flow to form a stream of viscous material, said stream comprising a first band of said first color and a second band of said second color, said second band being adjacent to said first band;
 - d) in a static mixer having a predetermined number of elements and a predetermined diameter, applying a predetermined dividing, overturning and combining motion to said stream for a predetermined ~~specific~~ number of times thereby partially mixing said first band and said second band, such that said first and second bands remain in the stream and said stream further comprises a third band of a third color that is different from said first and second colors, said third band being located between said first and second bands;
 - e) after applying the dividing, overturning and combining motion for a predetermined ~~specific~~ number of times, feeding said stream through a die for forming a sheet of material comprising a gradation of color,

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wherein said predetermined dividing, overturning and combining motion is determined by said predetermined number of elements and said predetermined diameter of the static mixer, and wherein said predetermined number of elements and said predetermined diameter are determined by a parameter selected from the type of viscous material, viscosity of said first and second flow of viscous material, the respective rate of flow of said first and second flows, the total rate of flow of said stream, and combinations thereof.

16. (Currently amended) A ~~process as defined in claim 15 for manufacturing~~ plastic article[[s]] comprising color gradation effects obtained by the process of claim 15.
17. (Currently amended) A ~~process as defined in claim 15 for manufacturing~~ plastic kayak[[s]] comprising color gradation effects obtained by the process of claim 15.
18. (Withdrawn) A system for creating color effects in extrudable material, said system comprising:
 - a) a first extruder for providing a first flow of viscous material of a first color;
 - b) a second extruder for providing a second flow of viscous material of a second color, the second color being different from the first color;
 - c) a feed block for combining said first and second flows into a stream of viscous material, said stream being characterized by a first band of said first color and a second band of said second color, said second band being adjacent to said first band;
 - d) a static mixer for receiving said stream from said feed block, said static mixer operative to partially mix said first and second bands of said stream such that, upon exiting said static mixer, said stream is further characterized by a third band of a third color, said third color being different from said first and second colors, said third band being located between said first and second bands.
19. (Withdrawn) A system as defined in claim 18, wherein said feed block is operative to position said first and second flows in horizontal layers.

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20. (Withdrawn) A system as defined in claim 18, wherein said feed block is operative to position said first and second flows in vertical layers.
21. (Withdrawn) A system as defined in claim 18, wherein said feed block is operative to position said first and second flows in concentric rings.
22. (Withdrawn) A system as defined in claim 18, wherein said static mixer includes a helical mixer.
23. (Withdrawn) A system as defined in claim 18, further comprising at least one additional extruder for providing at least one additional flow of viscous material.
24. (Withdrawn) A system as defined in claim 18, wherein upon exiting said static mixer, said stream is further characterized by at least one additional band located between said third band and either one of said first and second bands.
25. (Withdrawn) A system as defined in claim 24, wherein said at least one additional band is characterized by a color selected from the group consisting of: said first color; said second color; a blend of said first and second colors; a blend of said first and third colors; and a blend of said second and third colors.
26. (Withdrawn) A system as defined in claim 24, wherein said at least one additional band provides for a gradation in color from either one of said first and second colors to said third color.
27. (Withdrawn) A system as defined in claim 18, further comprising a die for receiving said stream from said static mixer, said die operative to form said stream of viscous material into a sheet.

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28. (Withdrawn) A system as defined in claim 18, further comprising a die for receiving said stream from said static mixer, said die operative to form said stream of viscous material into a tube.
29. (Withdrawn) A system as defined in claim 18, wherein said viscous material is viscous plastic.
30. (Withdrawn) An apparatus for creating color effects in extruded material, said apparatus comprising:
- a) an input for receiving a stream of viscous material, said stream being characterized by a first band of a first color and a second band of a second color, said second band being adjacent to said first band;
 - b) a static mixer operative to mix at least a portion of said first band with at least a portion of said second band such that, upon exiting said static mixer, said stream is further characterized by a third band of a third color, said third color being different from said first and second colors, said third band being located between said first and second bands.
31. (Withdrawn) An apparatus as defined in claim 30, wherein said static mixer includes a helical mixer.
32. (Withdrawn) An apparatus as defined in claim 30, wherein upon exiting said static mixer, said stream is further characterized by at least one additional band located between said third band and either one of said first and second bands.
33. (Withdrawn) An apparatus as defined in claim 32, wherein said at least one additional band is characterized by a color selected from the group consisting of: said first color; said second color; a blend of said first and second colors; a blend of said first and third colors; and a blend of said second and third colors.

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34. (Withdrawn) An apparatus as defined in claim 33, wherein said at least one additional band provides for a gradation in color from either one of said first and second colors to said third color.
35. (Withdrawn) A system for creating color effects in extrudable material, said system comprising:
- a) a first extruder for providing a first flow of viscous material of a first color;
 - b) a second extruder for providing a second flow of viscous material of a second color, the second color being different from the first color;
 - c) a feed block for combining said first and second flows into a stream of viscous material, said stream being characterized by a first band of said first color and a second band of said second color, said second band being adjacent to said first band;
 - d) a static mixer for receiving said stream from said feed block, said static mixer operative to partially mix said first and second bands of said stream such that, upon exiting said static mixer, said stream is further characterized by a third band of a third color, said third color being different from said first and second colors; a combining device for combining said stream characterized by a third color with at least one additional stream of viscous material provided by at least one additional extruder.
36. (Withdrawn) A system for creating color effects as defined in claim 35, wherein said combining device forms a co-extruded stream having at least two layers.
37. (Withdrawn) A system for creating color effects as defined in claim 36, wherein said system further comprises molding said stream having at least two layers into a final form.
38. (Previously presented) A process as defined in claim 8, wherein said static mixer includes a helical mixer.
39. (Cancelled)

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40. (Previously presented) A process as defined in claim 1, wherein said first, second and third bands of said stream form diagonal layers.